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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,185

07/14/2006

Shouichi Nakao

65341.00009

2822

32294

7590

03/11/2009

SQUIRE, SANDERS & DEMPSEY L.L.P.  
8000 TOWERS CRESCENT DRIVE  
14TH FLOOR  
VIENNA, VA 22182-6212

EXAMINER

BINDA, GREGORY JOHN

ART UNIT

PAPER NUMBER

3679

MAIL DATE

DELIVERY MODE

03/11/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,185	<b>Applicant(s)</b> NAKAO ET AL.	
	<b>Examiner</b> Greg Binda	<b>Art Unit</b> 3679	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7, 11 and 13-44 is/are allowed.
- 6) ☒ Claim(s) 8 and 12 is/are rejected.
- 7) ☐ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2009 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

*Drawings*

2. The replacement drawings filed January 12, 2009 are objected to because:
  - a. In Fig. 1 the lead line for reference numeral 22 fails to lead to the inner member
  - b. Reference character R is used to indicate a center of curvature in Fig. 2 and reused to identify a quantity in a ration at the last sentence of the paragraph at page 40, line 6.
  - c. Reference numerals 16 & 24+ are used in Fig. 20 to identify features and then reused to identify modifications of those features in Fig. 23.
3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Claim Rejections - 35 USC § 102*

4. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Miller et al, “Rzeppa Universal Joints” (hereinafter “Miller”). In Figs. 1 & 7, Miller shows a constant-velocity joint comprising:

an outer member (OUTER RACE) connected to one of two shafts which are angularly movable relative to each other and having an inner circumferential surface having a plurality of first guide grooves extending in an axial direction thereof, said outer member having an open end;

an inner ring (INNER RACE) connected to the other (SHAFT) of said two shafts and having as many second guide grooves as the number of said first guide grooves, said second guide grooves extending in an axial direction thereof;

six balls (BALLS) rollingly disposed between said first guide grooves and said second guide grooves, for transmitting a torque between said outer member and said inner ring; and

a retainer (CAGE) having retaining windows retaining said balls, respectively, therein,

wherein Fig. 7 shows the first guide grooves have a pitch circle diameter (which is the diameter coinciding with the ball center diameter derived from the ball center radius (BCR) in Fig. 10) and the second guide grooves have a pitch circle diameter (which is the diameter coinciding with the ball center diameter derived from the BCR). Since the pitch circle diameters

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of both the first and second grooves are equal to the ball center diameter, there is no difference between the two (i.e. "PCD clearance" is equal to zero).

5. Claims 8 & 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Thomas, US 2003/0054893. Figs. 1 & 3 show a constant-velocity joint comprising:

an outer member 12 connected to one 14 of two shafts which are angularly movable relative to each other and having an inside-diameter surface having a plurality of first guide grooves 16 extending in an axial direction thereof, said outer member having an open end;

an inner ring 20 connected to the other 22 of said two shafts and having as many second guide grooves 24 as the number of said first guide grooves, said second guide grooves extending in an axial direction thereof;

six balls 28 rollingly disposed between said first guide grooves and said second guide grooves, for transmitting a torque between said outer member and said inner ring; and

a retainer 30 having retaining windows 32 retaining said balls, respectively, therein,

wherein said first guide grooves have a pitch circle diameter (which equates to BCD shown in Fig. 3), said second guide grooves have a pitch circle diameter which equates to BCD shown in Fig. 3), and a ratio ( $b/BCD$ ) of a diameter ( $b$ ) of said balls to a dimension ( $BCD$ ) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal (i.e. PCD clearance = zero) to each other, is disclosed at para. 0031 as having a value that overlaps a portion of the range of 0.2 to 0.5.

*Allowable Subject Matter*

6. Claims 1-7, 11 & 13-44 are allowed.
7. Claims 9 & 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Response to Arguments*

8. Applicant's arguments filed January 12, 2009 have been fully considered but they are not persuasive:
  - a. Applicant argues Miller fails to anticipate the claim 8 because it allegedly does not show the features corresponding to instant Figs. 8. However, prior art such as Miller need only disclose the limitations of a claim, not features in a drawing. in order to anticipate the claim. Miller clearly shows in Fig. 7 that the first and second guide grooves are each arranged in a circle. There is nothing recited in claim 8 specifically pointing out where in the circle formed by each set of guide grooves the corresponding "pitch circle diameter" must be measured. The examiner takes the position that the "pitch circle diameter" for each of the first and second guide grooves equates to the ball circle diameter or 2 times BCR shown in Fig. 10. Nothing in claim 8 invalidates that position.
  - b. Applicant's argument with regard to Thomas' anticipation of claim 8 is the same unpersuasive argument made with regard to Miller's anticipation of claim 8.

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c. Applicant argues that Thomas fails to disclose a ratio of ball diameter to a common pitch circle diameter of the inner and outer guide grooves that is in the range of 0.2 to 0.5. However, as noted above, the common pitch circle diameter of the inner and outer grooves in Thomas equates to the BCD shown in Fig. 3. In paragraph 0031 the ratio  $BCD/b$  ( $b$ =ball diameter) is disclosed as less than 3.3. Therefore the inverse of the ratio,  $b/BCD$ , is equal to a value that overlaps a portion of the range of 0.2 to 0.5.

### *Conclusion*

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Binda whose telephone number is (571) 272-7077. The examiner can normally be reached on M-F 10:30 am to 8:00 pm with alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (571) 272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Greg Binda/  
Primary Examiner, Art Unit 3679